U. S. PTO Customer No. 25280

Case #5602

REMARKS

Claim Objection:

Claim 1 was objected to for the use of "(a)" without the use of "(b)." Applicants have amended claim 1 to remove the "(a)" indication. Thus, Applicants respectfully submit that this rejection has been overcome.

35 USC Section 103 Rejections:

Claims 1 – 6, 12 – 18, 22 – 23, 28, 30, 32, 34 – 35 and 37 were rejected under 35 USC 103(a) as being unpatentable over Nun et al. (US 2003/0147932) in view of Morgan et al. (US 2003/0096083).

The Examiner states that Nun et al. teach a self-cleaning surface for an article that has a "lotus effect" surface (Abstract) which provides a hydrophobic surface [0003]. The Examiner further states that the applied article taught by Nun's invention may comprise polyurethane fibers [0041]. The Examiner states that Morgan et al. teach a method of creating extremely hydrophobic surfaces that consist of elevations and indentations and that have a hydrophobic layer on their exterior (Abstract).

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art (MPEP § 2143.03). Applicant respectfully submit that the combination of references fails to teach or suggest all of the limitations of the invention as recited by the instant claims. More specifically, Applicants respectfully submit that the combination of references fails to disclose a fiber-containing substrate wherein the fibers have a Roughness Factor of greater than or equal to about 1:10.

In contrast to the assertion by the Examiner that Nun et al. teach polyurethane fibers, Applicants present the following disclosure from Nun et al. (paragraph [0041]):

> [0041] The surface of the invention may be at least one area, such as a molding, made from a material selected from the class consisting of polymers, e.g. the polyamides, polyurethanes, polyether block amides, polyeteramides, polyvinyl chloride, polyolefins, polysilicones, polysiloxanes, polymethyl methacrylates, or polyterephthalates, and metals, wood, leather, fibers, fabrics, glass, and ceramics.

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Applicants respectfully submit that the inclusion by Nun et al. of "metals, wood, leather, fibers, fabrics, glass, and ceramics" in this sentence is not intended to be related to the list of polymers that form a molded surface. Moreover, Applicants respectfully submit that the Examiner has invoked hindsight reconstruction to reject the claims based on the teachings of Nun in view of Morgan. Specifically, Applicants submit that the Examiner has inappropriately cited the disclosure by Nun of polyurethane polymer in paragraph [0041] as a teaching of polyurethane fibers, based on Applicants' disclosure and instant claims. Case law states that one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. See *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988).

Thus, Applicants respectfully believe that the Examiner has chosen the available limitations taught by Nun et al. and Morgan et al. in combination with the theory that all other limitations are merely an obvious variation of those references. Applicants respectfully submit that there is no teaching whatsoever by the combination of Nun et al. in view of Morgan et al. of polyurethane fiber, as asserted by the Examiner. Additionally, since the combination of references fails to disclose a fiber-containing substrate, the assertion by the Examiner that the Roughness Factor of the instant claims must be inherent in the combination of references based on the use of like materials is also improper.

Applicants also note, with regard to the teachings of Nun et al., that the reference teaches antimicrobial particles applied to the surface which have hydrophilic properties (paragraph [0039]). Nun et al. further state (paragraph 0055) that "the antimicrobial particles must not be hydrophobicized, since the antimicrobial property is lost when a hydrophobicizing reagent covers the surface." As such, Applicants respectfully contend that Nun et al. teaches away from Applicants' invention by disclosing the use of hydrophilic (i.e. water attracting) particles on the surface of the structure taught by Nun et al. In contrast, Applicants invention is directed to compositions and methods for treating textile substrates to obtain superior liquid repellent properties (Abstract). The use of hydrophilic materials would detrimentally affect these properties. Thus, since Nun et al. teaches away from Applicants' invention, Applicants respectfully submit that the combination of Nun et al. in view of Morgan et al. is improper and submits that the rejection should be withdrawn.

Accordingly, taking into account all of the deficiencies of the teachings of Nun et al. in view of Morgan et al. discussed above, Applicants respectfully submit that the obviousness rejection of claims 1 – 6, 12 – 18, 22 – 23, 28, 30, 32, 34 – 35 and 37 should not be maintained.

Claims 10 – 11, 19 – 21, 24 – 27, 29, 31, 33, 36 and 38 – 39 were rejected under 35 USC 103(a) as being unpatentable over Nun et al. (US 2003/0147932) in view of Morgan et al. (US 2003/0096083) and further in view of Soane et al. (USPN 6,607,994).

The Examiner submits that the inventions of Nun and Morgan are silent to the use of crosslinked polyurethane as well as nonwoven, woven, knitted substrates or scrims for surface modification. The Examiner further submits that Soane et al. teach a permanent treatment of textiles and other webs that includes the chemical covalent bonding of a payload of nanoparticle on the surface of a fiber, yarn, fabric, etc. (Abstract). The term "textile" encompasses woven, nonwoven, and knitted substrates (col. 2, lines 45-48). The Examiner takes the position that the intent of Sloane et al. is to encompass all textiles, which includes scrims. The "payload" may be attached to the textile via crosslinked polyurethane polymer (col. 6, lines 25-38). Thus, the Examiner submits that it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have made the article of Nun et al. with textile substrates of Soane et al. and attach the nanoparticles via crosslinked polyurethane motivated by the desire to use "smart polymers" that react to the environmental surroundings (col. 6, lines 15-28) and create a treated textile for use in a wide variety of applications.

Applicants respectfully disagree with the basis of this rejection and rely on the discussion presented above (see pages 8-9) with regard to the deficiencies of Nun et al. and Morgan et al. Soane et al. teach encapsulated nanoparticles which may be attached to the surface of a textile substrate (Abstract) and that the polymers used in forming the nanoparticles may be either hydrophobic or hydrophilic (col. 3, line 46 to col. 4, line 54).

Applicants' invention is directed to compositions and methods for treating textile substrates to obtain superior liquid repellent properties. The teaching by Soane et al. of hydrophilic (i.e. water loving) nanoparticles is a clear teaching away from Applicants' invention. As such, Applicants respectfully submit that this rejection is improper and request that it be withdrawn.

Claims 7 – 9 and 40 – 45 were rejected under 35 USC 103(a) as being unpatentable over Nun et al. (US 2003/0147932) in view of Morgan et al. (US 2003/0096083) and further in view of Yamamoto et al. (US 2004/0202818).

The Examiner relies on Yamamoto et al. for a teaching of fluoroacrylates and submits that it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have coated the article of Nun et al. with a fluoroalkyl group-containing (meth)acrylate motivated by the desire to make the article more hydrophobic.

Applicants respectfully disagree with the basis of this rejection and rely on the discussion presented above (see pages 8-9) with regard to the deficiencies of Nun et al. and Morgan et al. Yamamoto et al. is directed to compositions and methods for imparting oil and water repellent properties to a textile substrate (Abstract). However, Yamamoto et al. fails to teach a fiber-containing substrate having integral microscopic surface structures on at least a portion of its surface, wherein the integral microscopic surface structures have projections substantially normal to the plane of the substrate, wherein the surface has of a plurality of unbroken fibers comprising surface structures along the length of the fibers, and wherein the fibers exhibit a Roughness Factor of greater than or equal to 1:10.

Thus, since the combination of Nun et al. in view of Morgan et al. is improper, as explained previously, and since Yamamoto et al. fail to provide for the deficiencies of Nun and Morgan, Applicants respectfully submit that this rejection is improper and request that it be withdrawn.

Double Patenting Rejections:

Claims 1 – 45 were provisionally rejected on the grounds of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-70 of copending Application No. 10/785,218.

Applicants are willing to submit a terminal disclaimer to overcome this rejection once all other issues of patentability have been resolved.

Claims 1 – 45 were provisionally rejected on the grounds of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-15 and 1-29 of copending Application Nos. 10/339,971 and 10/339,911, respectively.

Applicants respectfully disagree with this rejection and submit that the copending Applications teach a composition which may be added to the surface of a textile substrate, said composition comprising (a) a hydrophobic repellent agent, (b) a hydrophobic crosslinking agent, and (c) a hydrophilic soil

release agent. As such, Applicants respectfully submit that the copending Applications actually teach away from the present invention, said present invention being directed to compositions and methods for treating textile substrates to obtain superior liquid repellent properties, by teaching the inclusion of hydrophilic soil release agents. The addition of any hydrophilic agents to the present invention would be counter productive to the creation of a fiber-containing substrate having super hydrophobic properties. As such, Applicants respectfully submit that this rejection is improper and request that the rejection be withdrawn.

Conclusion:

For the reasons set forth above, it is respectfully submitted that all claims now stand in condition for allowance.

Should any issues remain after consideration of these Amendments and accompanying Remarks, the Examiner is invited and encouraged to telephone the undersigned in the hope that any such issue may be promptly and satisfactorily resolved.

In the event that there are additional fees associated with the submission of these papers, authorization is hereby provided to withdraw such fees from Deposit Account No. 04-0500.

Respectfully requested,

April 10, 2006

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